

**State-Boston Retirement System**

*Actuarial Valuation and Review  
as of January 1, 2006*

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*May 24, 2006*

*Board of Trustees  
State-Boston Retirement System  
City Hall, Room 816  
Boston, MA 02201*

*Dear Board Members:*

*We are pleased to submit this Actuarial Valuation and Review as of January 1, 2006. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2007 and later years and analyzes the preceding two years' experience.*

*The census information and financial information on which our calculations were based was prepared by the staff of the State-Boston Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under my supervision.*

*This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.*

*We look forward to reviewing this report at your next meeting and to answering any questions.*

*Sincerely,*

*THE SEGAL COMPANY*

*By: \_\_\_\_\_  
Kathleen A. Riley, FSA, MAAA, EA  
Senior Vice President and Actuary  
256313/03630.011*

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## SECTION 1: Valuation Summary for the State-Boston Retirement System

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### Purpose

This report has been prepared by The Segal Company to present a valuation of the State-Boston Retirement System as of January 1, 2006. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of January 1, 2006;
- The assets of the Plan as of December 31, 2005;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

### Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The actuarial valuation report as of January 1, 2006 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.
- During the plan years ended 2004 and 2005, the market value rate of return was 11.45% and 7.42%, respectively. The actuarial rates of return for the plan years ended 2004 and 2005 were 7.71% and 7.65%, respectively. The actuarial value of assets as of December 31, 2005 was \$3,836,806,971, or 101.3% of the market value of assets. As of December 31, 2003, the actuarial value of assets was 104.6% of the market value.
- As indicated in Section 2, Subsection B of this report, the total unrecognized investment loss as of December 31, 2005 is \$50,295,318. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience. This implies that earning the assumed rate of investment return of 8.00% per year (net of expenses) on a **market value** basis will result in investment losses on the actuarial value of assets in the next few years. Therefore, if the actual market return is equal to the assumed 8.00% rate and all other actuarial assumptions are met, the contribution requirements will increase more than expected in each of the next few years.

## SECTION 1: Valuation Summary for the State-Boston Retirement System

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- In 2004, the Public Employee Retirement Administration Commission approved a new mortality table and interest rate to be used in the calculation of the optional form of payment factors. This valuation reflects the change to the new factors.
- The unfunded liability has increased from \$2,036,028,141 as of January 1, 2004 to \$2,120,566,133 as of January 1, 2006. This increase is primarily due to an investment loss on an actuarial basis of \$23,178,861 on the two-year period ended December 31, 2005, salary increases more than the expected increase, and payments due to other Retirement Systems in accordance with M.G.L. Chapter 32 Section 3(8)c.
- With the prior valuation, the Board adopted a funding schedule which reduces the unfunded actuarial accrued liability to zero over a 19-year period in payments which increase at the rate of 4.50% per year. This report includes a recommended contribution based on the remaining 17-year schedule. The fiscal year 2007 appropriation has been set at the budgeted amount of \$221,864,840. The results of this valuation will first be reflected in the fiscal year 2008 appropriation which is \$233,778,749, or 5.4% higher than fiscal year 2007.

**SECTION 1: Valuation Summary for the State-Boston Retirement System**

**Summary of Key Valuation Results**

	January 1, 2006	January 1, 2004
<b>Contributions:</b>		
Recommended for fiscal 2007 and 2005	\$221,864,840	\$169,953,176
Recommended for fiscal 2008 and 2006	233,778,744	212,310,852
<b>Funding elements for plan year beginning January 1:</b>		
Normal cost, including administrative expenses	\$154,015,044	\$140,012,414
Market value of assets	3,786,511,653	3,236,815,933
Actuarial value of assets	3,836,806,971	3,384,813,539
Actuarial accrued liability	5,957,373,104	5,420,841,680
Unfunded actuarial accrued liability	2,120,566,133	2,036,028,141
<b>GASB 25/27:</b>		
Annual required contributions	\$217,087,846	\$164,069,000
Actual contributions	--	164,069,000
Percentage contributed	--	100.00%
Funded ratio	64.40%	62.44%
<b>Demographic data for plan year beginning January 1:</b>		
Number of retired participants and beneficiaries	13,783	14,034
Number of inactive participants	6,178	5,294
Number of active participants	20,917	20,456
Total payroll	\$1,114,893,247	\$1,017,821,901
Average payroll	53,301	49,757

**SECTION 2: Valuation Results for the State-Boston Retirement System**

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**A. PARTICIPANT DATA**

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

*A historical perspective of how the participant population has changed over the past six valuations can be seen in this chart.*

**CHART 1**  
**Participant Population: 1995 – 2005**

<b>Year Ended December 31</b>	<b>Active Participants</b>	<b>Inactive Participants</b>	<b>Retired Participants and Beneficiaries</b>
1995	21,128	1,425	13,339
1996	18,641	3,703	13,492
1999	19,953	1,459	13,381
2001	22,003	3,560	13,144
2003	20,456	5,294	14,034
2005	20,917	6,178	13,783

**SECTION 2: Valuation Results for the State-Boston Retirement System**

**Active Participants**

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 20,917 active participants with an average age of 45.0, average years of service of 13.0 years and average payroll of \$53,301. The 20,456 active participants in the prior valuation had an average age of 44.6, average service of 12.9 years and average payroll of \$49,757.

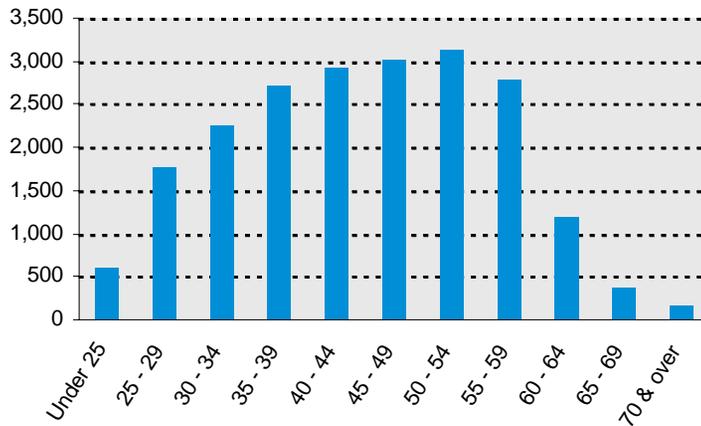
Among the active participants, there were 164 participants (0.8%) with unknown service information. The actuarial calculations were adjusted for the missing information by assuming that it was the same as information provided for other active participants with similar known characteristics.

**Inactive Participants**

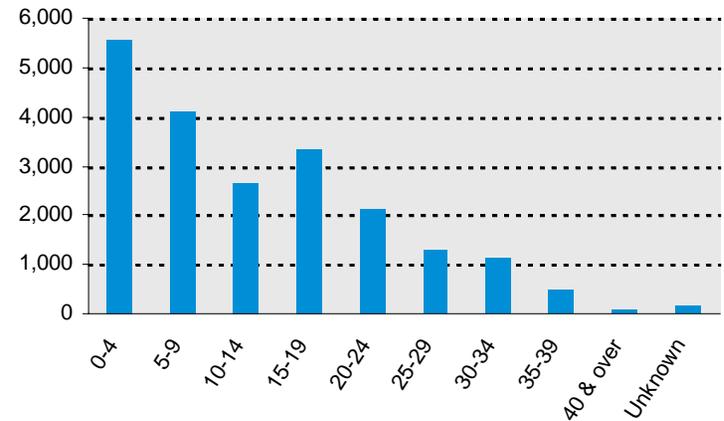
In this year's valuation, there were 6,178 participants with a vested right to a deferred or immediate vested benefit or entitled to a return of their employee contributions.

*These graphs show a distribution of active participants by age and by years of service.*

**CHART 2**  
**Distribution of Active Participants by Age as of December 31, 2005**



**CHART 3**  
**Distribution of Active Participants by Years of Service as of December 31, 2005**



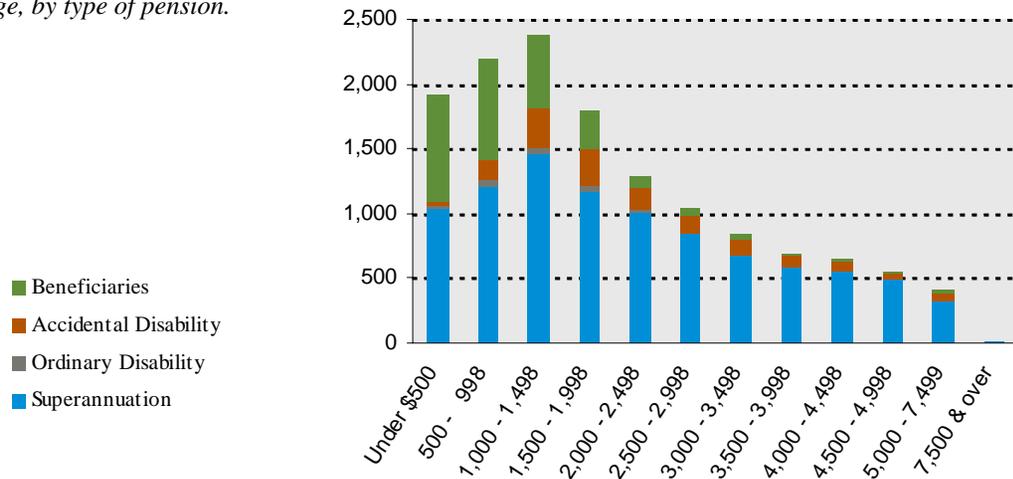
**SECTION 2: Valuation Results for the State-Boston Retirement System**

**Retired Participants and Beneficiaries**

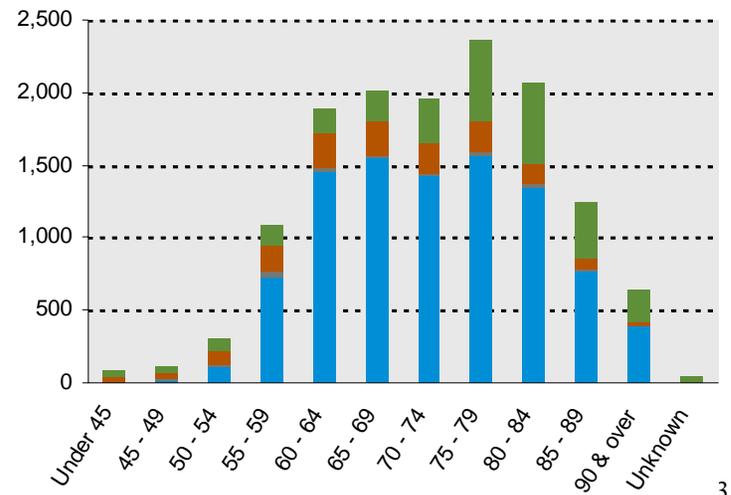
As of December 31, 2005, 11,027 retired participants and 2,756 beneficiaries were receiving total monthly benefits of \$27,180,904, excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 11,221 retired participants and 2,813 beneficiaries receiving monthly benefits of \$24,783,105, excluding COLAs reimbursed by the Commonwealth.

*These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.*

**CHART 4**  
**Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2005**



**CHART 5**  
**Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2005**



**SECTION 2: Valuation Results for the State-Boston Retirement System**

**B. FINANCIAL INFORMATION**

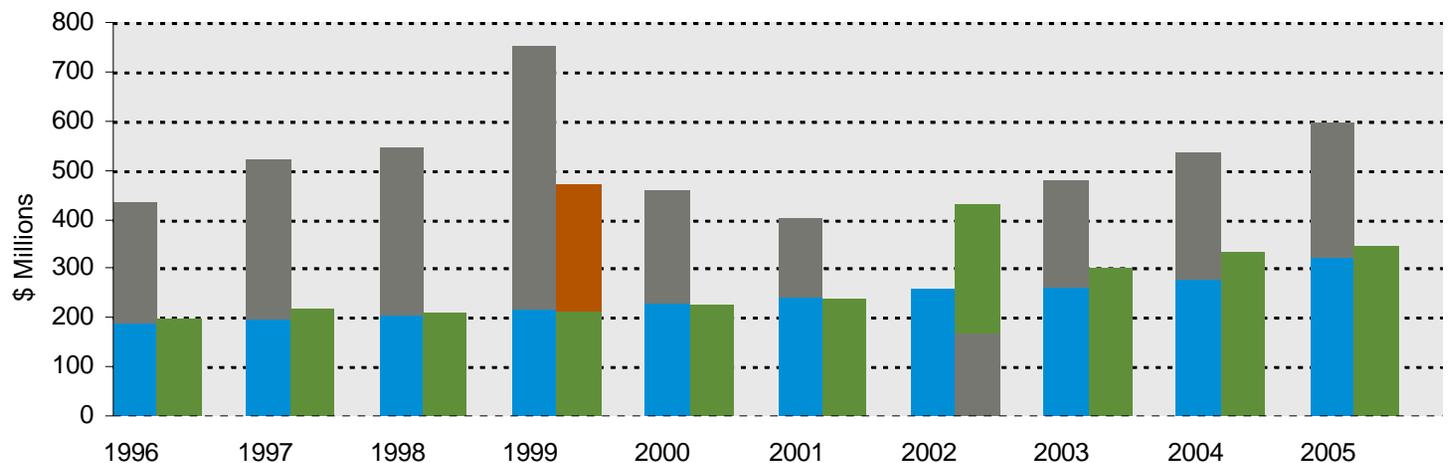
Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

*The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases. Investment income is on a market value basis prior to 2000.*

**CHART 6**  
**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 1996 – 2005**

- Change in asset method
- Benefits paid
- Net investment income
- Net contributions



## SECTION 2: Valuation Results for the State-Boston Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

### CHART 7 Determination of Actuarial Value of Assets

	Year Ended	
	December 31, 2005	December 31, 2004
1. Actuarial value of assets at the beginning of the year	\$3,587,118,114	\$3,384,813,539
2. Contributions, less benefit payments and expenses during the year	-23,756,503	-56,404,840
3. Average actuarial value of assets: (1) + 50% of (2)	3,575,239,863	3,356,611,119
4. Expected investment income: .08 x (3)	286,019,189	268,528,890
5. Preliminary actuarial value of assets at the end of the year: (1) + (2) + (4)	3,849,380,800	3,596,937,589
6. Market value of assets at the end of the year	3,786,511,653	3,547,840,216
7. Adjustment toward market value: 20% of [(6) - (5)]	-12,573,829	-9,819,475
8. Adjustment to be within 20% corridor	0	0
9. Final actuarial value of assets: (5) + (7) + (8)	<u>\$3,836,806,971</u>	<u>\$3,587,118,114</u>
10. Actuarial value as a percentage of market value: (9) ÷ (6)	101.3%	101.1%

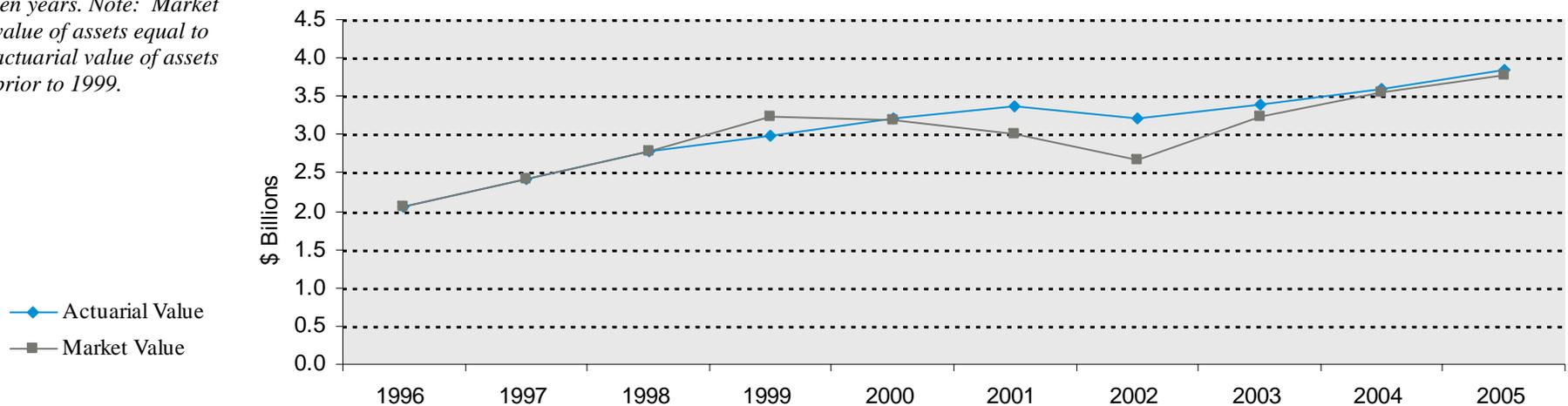
## SECTION 2: Valuation Results for the State-Boston Retirement System

Both the actuarial value and market value of assets are representations of the State-Boston Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the State-Boston Retirement System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

*This chart shows the change in the actuarial value of assets versus the market value over the past ten years. Note: Market value of assets equal to actuarial value of assets prior to 1999.*

**CHART 8**

**Actuarial Value of Assets vs. Market Value of Assets as of December 31, 1996 – 2005**



## SECTION 2: Valuation Results for the State-Boston Retirement System

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### C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total experience loss for the two-year period ended December 31, 2005 is \$61,281,656. A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience over the past two years.*

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### CHART 9

#### Actuarial Experience for Two-Year Period Ended December 31, 2005

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1. Net loss from investments*	-\$23,178,861
2. Net gain from administrative expenses	3,388,475
3. Net loss from other experience**	<u>-41,491,270</u>
4. Net experience loss: (1) + (2) + (3)	-\$61,281,656

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\* Details in Chart 10

\*\* Details in Chart 13

**SECTION 2: Valuation Results for the State-Boston Retirement System**

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**Investment Rate of Return**

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the State-Boston Retirement System’s investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.00%. The actual rate of return on an actuarial basis for the 2005 and 2004 plan years was 7.65% and 7.71%, respectively.

Since the actual return for the year was less than the assumed return, the State-Boston Retirement System experienced an actuarial loss during the two-year period ending December 31, 2005 with regard to its investments of \$23,178,861, including an adjustment for interest.

*This chart shows the gain/(loss) due to investment experience.*

**CHART 10**  
**Actuarial Value Investment Experience**

	Year Ended	
	December 31, 2005	December 31, 2004
1. Actual return	\$273,445,360	\$258,709,416
2. Average value of assets	3,575,239,863	3,356,611,119
3. Actual rate of return: (1) ÷ (2)	7.65%	7.71%
4. Assumed rate of return	8.00%	8.00%
5. Expected return: (2) x (4)	\$286,019,189	\$268,528,890
6. Actuarial gain/(loss): (1) – (5)	<u>-\$12,573,829</u>	<u>-\$9,819,474</u>

**SECTION 2: Valuation Results for the State-Boston Retirement System**

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.00%.

**CHART 11**

**Investment Return – Actuarial Value vs. Market Value: 1996 - 2005**

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
1996	\$242,465,109	13.37%	\$242,465,109	13.37%
1997	326,844,858	16.00	326,844,858	16.00
1998	342,723,960	14.54	342,723,960	14.54
1999	279,508,594	10.36	534,161,685	19.80
2000	230,167,878	7.72	-57,650,028	-1.78
2001	163,719,630	5.10	-176,101,089	-5.54
2002	-169,224,346	-5.01	-330,387,570	-11.00
2003	217,873,886	6.84	604,025,038	22.78
2004	258,709,416	7.71	367,429,124	11.45
2005	<u>273,445,360</u>	7.65	<u>262,427,939</u>	7.42
Total	\$2,166,234,344		\$2,115,939,026	
	Five-year average return	4.46%		4.67%
	Ten-year average return	7.57%		7.63%

*Note: Each year's yield is weighted by the average asset value in that year.*

**SECTION 2: Valuation Results for the State-Boston Retirement System**

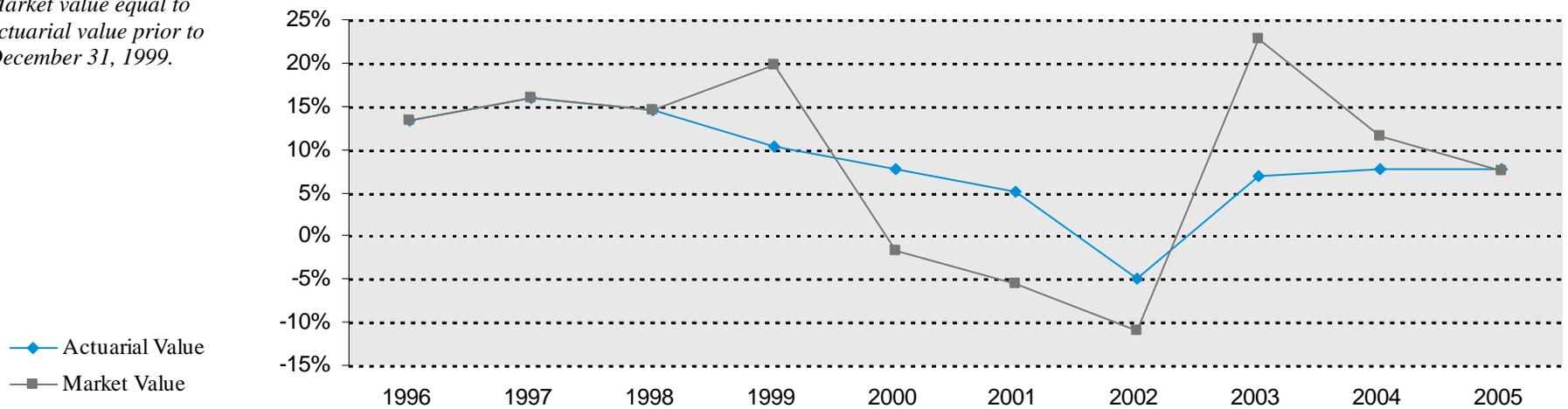
Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

**Administrative Expenses**

Administrative expenses for the years ended December 31, 2005 and 2004 were \$2,399,871 and \$2,415,427, respectively compared to the assumption of \$3,800,000 for calendar year 2004 and \$3,971,000 for calendar year 2005. This resulted in a gain of \$3,388,475 for the two-year period, including an adjustment for interest. We have maintained the assumption of \$3,800,000 for calendar year 2006.

*This chart illustrates how this leveling effect has actually worked over the years 1996 - 2005. Note: Market value equal to actuarial value prior to December 31, 1999.*

**CHART 12**  
**Market and Actuarial Rates of Return for Years Ended December 31, 1996 - 2005**



**SECTION 2: Valuation Results for the State-Boston Retirement System**

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**Other Experience**

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the two-year

period ending December 31, 2005 amounted to (\$41,491,270) which is 0.7% of the actuarial accrued liability.

A brief summary of the demographic gain/(loss) experience of the State-Boston Retirement System for the two-year period ending December 31, 2005 is shown in the chart below.

In 2004, the Public Employee Retirement Administration Commission approved a new mortality table and interest rate to be used in the calculation of the optional form of payment factors. This valuation reflects the change to the new factors.

*The chart shows elements of the experience gain/(loss) for the most recent years.*

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**CHART 13**

**Experience from Sources Other than Investments and Administrative Expenses for Two-Year Period Ended December 31, 2005**

1. Net 3(8)c reimbursement to other systems	-\$14,314,345
2. Salary increases more than expected for continuing actives	-8,910,263
3. Miscellaneous loss	<u>-18,266,662</u>
4. Total loss from other experience	-\$41,491,270

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**SECTION 2: Valuation Results for the State-Boston Retirement System**

**D. RECOMMENDED CONTRIBUTION**

The amount of annual contribution required to fund the System is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

We have determined a preliminary recommended contribution of \$223,572,143 based on a 17-year increasing (4.5% per year) amortization payment. Because the fiscal 2007 appropriation has already been budgeted at

\$221,864,840, the results of this valuation will first be reflected in the fiscal 2008 appropriation of \$233,778,744. Exhibit F in Section 3 shows the recommended contribution through fiscal 2028 based on this funding schedule.

*The chart compares this valuation's recommended contribution with the prior valuation.*

**CHART 14  
Recommended Contribution**

	Year Beginning January 1			
	2006		2004	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$150,215,044	12.85%	\$136,212,414	12.76%
2. Administrative expenses	3,800,000	0.33%	3,800,000	0.36%
3. Expected employee contributions	<u>-106,485,861</u>	<u>9.11%</u>	<u>-95,126,762</u>	<u>8.91%</u>
4. Employer normal cost: (1) + (2) + (3)	\$47,529,183	4.07%	\$44,885,652	4.20%
5. Actuarial accrued liability	5,957,373,104		5,420,841,680	
6. Actuarial value of assets	<u>3,836,806,971</u>		<u>3,384,813,539</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$2,120,566,133		\$2,036,028,141	
8. Employer normal cost projected to July 1, 2006 and 2004, adjusted for timing	50,492,907	4.23%	47,684,536	4.37%
9. Projected unfunded actuarial accrued liability	2,203,756,971		2,115,902,512	
10. 17-year and 19-year increasing payment on projected unfunded actuarial accrued liability, adjusted for timing	173,079,236	14.49%	153,170,070	14.04%
11. Preliminary recommended contribution: (8) + (10)	223,572,143	18.71%	200,854,606	18.41%
12. Budgeted appropriation	<u>221,864,840</u>	<u>18.57%</u>	<u>169,953,176</u>	<u>15.57</u>
13. Projected payroll	\$1,194,816,375		\$1,091,246,433	

*Notes: Recommended contributions are assumed to be paid monthly.  
Amortization payments increase at 4.5% per year.*

## SECTION 2: Valuation Results for the State-Boston Retirement System

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The recommended contribution is based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. It includes all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

### Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

*The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.*

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#### CHART 15

#### Reconciliation of Recommended Contribution from July 1, 2004 to July 1, 2006

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<b>Preliminary Recommended Contribution as of July 1, 2004</b>	\$200,854,606
Expected increase	\$21,010,234
Effect of investment loss	1,891,844
Effect of net other changes	<u>-184,541</u>
<b>Total change</b>	<u>\$22,717,537</u>
<b>Preliminary Recommended Contribution as of July 1, 2006</b>	\$223,572,143

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**SECTION 2: Valuation Results for the State-Boston Retirement System**

**E. INFORMATION REQUIRED BY THE GASB**

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded on an actuarially sound basis and in accordance with the GASB funding requirements. Chart 16 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

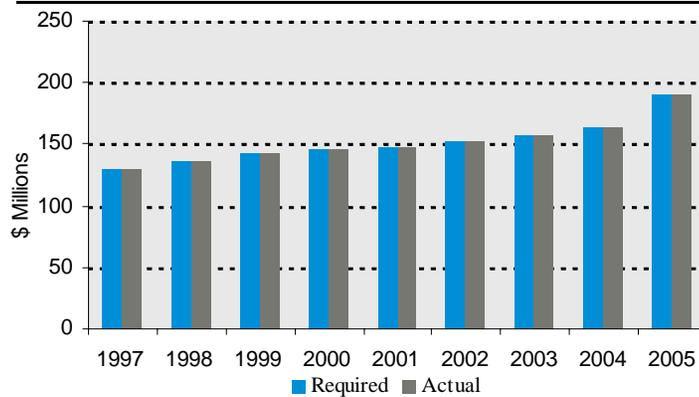
actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other changes.

Although GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 17 shows the funded ratio calculated using both the actuarial value of assets and the market value of assets.

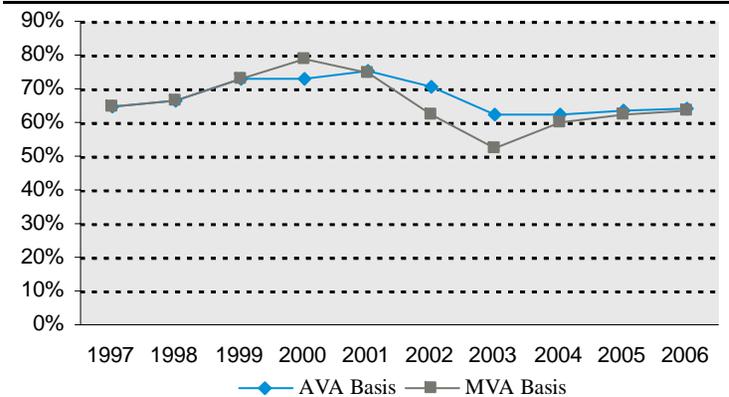
The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

*These graphs show key GASB factors.*

**CHART 16**  
**Required Versus Actual Contributions**



**CHART 17**  
**Funded Ratio**



**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT A**

**Table of Plan Coverage**

<b>Category</b>	<b>Year Ended December 31</b>		<b>Change From Prior Year</b>
	<b>2005</b>	<b>2003</b>	
<b>Active participants in valuation:</b>			
Number	20,917	20,456	2.3%
Average age	45.0	44.6	N/A
Average service	13.0	12.9	N/A
Total payroll	\$1,114,893,247	\$1,017,821,901	9.5%
Average payroll	53,301	49,757	7.1%
Account balances	986,843,952	872,838,111	13.1%
Number with unknown age and/or service information	164	144	13.9%
<b>Inactive employees with vested rights to a return of their employee contributions or a deferred or immediate vested benefit</b>			
	6,178	5,294	16.7%
<b>Retired participants:</b>			
Number in pay status	9,369	9,538	-1.8%
Average age	72.6	72.3	N/A
Average monthly benefit	\$2,193	\$1,969	11.4%
<b>Disabled participants:</b>			
Number in pay status	1,658	1,683	-1.5%
Average age	67.7	67.7	N/A
Average monthly benefit	\$2,246	\$1,975	13.7%
<b>Beneficiaries in pay status</b>			
	2,756	2,813	-2.0%

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B**

**Participants in Active Service During the Year Ended December 31, 2005  
By Age, Years of Service, and Average Payroll**

Age	Years of Service										
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	Unknown
Under 25	599	588	9	--	--	--	--	--	--	--	2
	\$33,249	\$33,423	\$26,911	--	--	--	--	--	--	--	\$10,603
25 - 29	1,780	1,444	318	11	--	--	--	--	--	--	7
	\$42,636	\$42,471	\$43,535	\$48,948	--	--	--	--	--	--	\$26,011
30 - 34	2,249	1,005	904	264	34	--	--	--	--	--	42
	\$48,598	\$42,892	\$53,489	\$54,786	\$52,807	--	--	--	--	--	\$37,570
35 - 39	2,717	694	766	663	499	61	--	--	--	--	34
	\$52,218	\$39,459	\$52,898	\$59,806	\$58,473	\$57,281	--	--	--	--	\$48,497
40 - 44	2,916	572	586	490	872	348	19	--	--	--	29
	\$53,298	\$35,507	\$47,777	\$56,991	\$63,737	\$60,898	\$69,360	--	--	--	\$37,772
45 - 49	3,007	480	532	407	730	555	266	22	--	--	15
	\$54,134	\$33,897	\$43,681	\$51,227	\$61,969	\$66,148	\$69,364	\$75,077	--	--	\$24,664
50 - 54	3,122	358	394	371	535	532	554	346	19	--	13
	\$59,436	\$37,297	\$46,034	\$50,109	\$58,981	\$65,651	\$75,334	\$74,118	\$64,234	--	\$30,735
55 - 59	2,792	237	314	246	383	419	300	589	287	7	10
	\$63,064	\$35,861	\$44,181	\$54,824	\$53,395	\$64,276	\$73,027	\$80,488	\$78,943	\$69,674	\$37,448
60 - 64	1,195	109	181	136	185	157	91	125	165	39	7
	\$56,006	\$31,133	\$40,009	\$46,566	\$49,722	\$57,085	\$62,203	\$73,870	\$84,092	\$75,192	\$13,746
65 - 69	372	38	66	51	72	45	28	32	22	17	1
	\$41,943	\$13,666	\$30,156	\$38,453	\$44,288	\$49,779	\$54,629	\$46,485	\$60,628	\$79,506	\$831
70 & over	168	24	32	15	27	17	12	17	7	13	4
	\$33,021	\$11,791	\$20,743	\$34,682	\$40,742	\$44,536	\$47,755	\$31,511	\$44,102	\$58,415	\$11,643
Total	20,917	5,549	4,102	2,654	3,337	2,134	1,270	1,131	500	76	164
	\$53,301	\$38,583	\$47,806	\$54,378	\$59,120	\$63,363	\$71,791	\$76,004	\$78,790	\$72,779	\$35,446

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) Boston Housing Authority**

**Participants in Active Service During the Year Ended December 31, 2005  
By Age, Years of Service, and Average Payroll**

Age	Years of Service										
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	Unknown
Under 25	12	12	0	0	0	0	0	0	0	0	0
	\$34,961	\$34,961	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 - 29	27	18	9	0	0	0	0	0	0	0	0
	\$37,251	\$37,255	\$37,241	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30 - 34	56	27	27	1	0	0	0	0	0	0	1
	\$39,223	\$42,192	\$37,355	\$44,563	\$0	\$0	\$0	\$0	\$0	\$0	\$4,171
35 - 39	90	22	37	6	22	1	0	0	0	0	2
	\$41,433	\$37,566	\$42,551	\$40,407	\$43,738	\$47,224	\$0	\$0	\$0	\$0	\$38,092
40 - 44	118	27	35	13	32	10	0	0	0	0	1
	\$45,845	\$45,802	\$43,986	\$45,869	\$46,544	\$49,099	\$0	\$0	\$0	\$0	\$56,854
45 - 49	126	13	34	8	31	20	19	0	0	0	1
	\$48,428	\$41,829	\$47,277	\$55,474	\$51,067	\$51,210	\$46,847	\$0	\$0	\$0	\$9,581
50 - 54	108	19	32	7	19	23	4	4	0	0	0
	\$49,164	\$43,898	\$51,330	\$46,236	\$46,247	\$52,240	\$47,864	\$59,449	\$0	\$0	\$0
55 - 59	103	11	31	8	25	12	6	7	2	0	1
	\$48,380	\$36,598	\$49,246	\$47,274	\$48,321	\$53,442	\$50,285	\$60,601	\$46,102	\$0	\$8,318
60 - 64	50	6	15	4	12	10	0	1	2	0	0
	\$46,532	\$44,810	\$38,677	\$50,022	\$49,480	\$52,418	\$0	\$38,228	\$60,674	\$0	\$0
65 - 69	31	1	13	3	8	3	1	1	1	0	0
	\$46,142	\$54,170	\$39,255	\$49,243	\$44,355	\$53,238	\$107,441	\$57,969	\$38,228	\$0	\$0
70 & over	6	0	2	0	1	0	0	0	2	1	0
	\$36,869	\$0	\$24,290	\$0	\$40,046	\$0	\$0	\$0	\$46,270	\$40,046	\$0
Total	727	156	235	50	150	79	30	13	7	1	6
	\$45,576	\$40,999	\$44,142	\$47,535	\$47,401	\$51,761	\$49,690	\$58,323	\$49,188	\$40,046	\$25,851

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) Boston Redevelopment Authority  
Participants in Active Service During the Year Ended December 31, 2005  
By Age, Years of Service, and Average Payroll**

Age	Years of Service										
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	Unknown
Under 25	2	2	0	0	0	0	0	0	0	0	0
	\$41,926	\$41,926	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 - 29	11	10	1	0	0	0	0	0	0	0	0
	\$47,237	\$46,057	\$59,036	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30 - 34	16	7	9	0	0	0	0	0	0	0	0
	\$66,058	\$67,342	\$65,059	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
35 - 39	18	8	7	2	0	1	0	0	0	0	0
	\$59,883	\$57,287	\$63,151	\$64,456	\$0	\$48,628	\$0	\$0	\$0	\$0	\$0
40 - 44	14	3	4	2	0	4	0	0	0	0	1
	\$62,063	\$65,335	\$65,325	\$61,736	\$0	\$65,966	\$0	\$0	\$0	\$0	\$24,242
45 - 49	14	1	3	4	2	3	1	0	0	0	0
	\$66,816	\$69,326	\$70,969	\$72,041	\$56,749	\$69,239	\$43,816	\$0	\$0	\$0	\$0
50 - 54	12	4	1	0	0	2	3	1	1	0	0
	\$92,918	\$110,031	\$146,953	\$0	\$0	\$86,846	\$81,258	\$49,526	\$60,955	\$0	\$0
55 - 59	14	1	0	2	3	3	2	2	1	0	0
	\$70,328	\$68,886	\$0	\$64,514	\$61,124	\$62,012	\$91,905	\$75,127	\$83,213	\$0	\$0
60 - 64	10	0	1	1	2	4	0	1	1	0	0
	\$82,033	\$0	\$131,243	\$47,910	\$56,053	\$80,714	\$0	\$108,946	\$97,271	\$0	\$0
65 - 69	4	0	0	1	1	0	0	0	1	1	0
	\$64,229	\$0	\$0	\$10,000	\$38,176	\$0	\$0	\$0	\$62,238	\$146,501	\$0
70 & over	4	1	0	0	0	0	0	0	0	3	0
	\$68,821	\$64,338	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$70,315	\$0
Total	119	37	26	12	8	17	6	4	4	4	1
	\$67,183	\$62,508	\$70,732	\$60,624	\$55,894	\$70,753	\$78,567	\$77,181	\$75,919	\$89,361	\$24,242

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) Boston Water & Sewer Commission**  
**Participants in Active Service During the Year Ended December 31, 2005**  
**By Age, Years of Service, and Average Payroll**

Age	Years of Service										Unknown	
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over		
Under 25	22	21	1	0	0	0	0	0	0	0	0	0
	\$35,820	\$35,874	\$34,684	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 - 29	28	17	10	1	0	0	0	0	0	0	0	0
	\$36,852	\$34,744	\$40,234	38,865	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30 - 34	37	11	18	6	2	0	0	0	0	0	0	0
	\$42,856	\$38,639	\$43,798	\$46,641	\$46,226	\$0	\$0	\$0	\$0	\$0	\$0	\$0
35 - 39	66	15	22	9	19	1	0	0	0	0	0	0
	\$45,412	\$40,189	\$41,727	\$47,075	\$52,768	\$50,070	\$0	\$0	\$0	\$0	\$0	\$0
40 - 44	67	14	12	12	19	8	2	0	0	0	0	0
	\$53,654	\$36,839	\$55,553	\$66,674	\$55,921	\$55,010	\$54,878	\$0	\$0	\$0	\$0	\$0
45 - 49	98	11	14	9	23	23	17	1	0	0	0	0
	\$52,423	\$37,251	\$47,491	\$58,713	\$53,132	\$52,474	\$61,155	\$65,783	\$0	\$0	\$0	\$0
50 - 54	84	9	14	7	13	11	15	15	0	0	0	0
	\$58,230	\$42,735	\$50,839	\$69,523	\$58,253	\$57,675	\$58,427	\$69,345	\$0	\$0	\$0	\$0
55 - 59	43	12	3	2	5	8	2	3	8	0	0	0
	\$52,287	\$34,495	\$50,661	\$40,319	\$58,159	\$57,907	\$52,697	\$59,032	\$70,652	\$0	\$0	\$0
60 - 64	21	1	6	4	3	4	2	0	0	1	0	0
	\$50,757	\$39,541	\$51,106	\$44,277	\$58,101	\$50,885	\$47,448	\$0	\$0	\$69,884	\$0	\$0
65 - 69	1	0	0	0	1	0	0	0	0	0	0	0
	\$58,228	\$0	\$0	\$0	\$58,228	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70 & over	2	0	0	0	1	1	0	0	0	0	0	0
	\$52,511	\$0	\$0	\$0	\$45,575	\$59,445	\$0	\$0	\$0	\$0	\$0	\$0
Total	469	111	100	50	86	56	38	19	8	1	0	0
	\$50,115	\$37,257	\$46,453	\$56,306	\$54,718	\$54,602	\$58,581	\$67,529	\$70,652	\$69,884	\$0	\$0

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) Public Health Commission**

**Participants in Active Service During the Year Ended December 31, 2005  
By Age, Years of Service, and Average Payroll**

Age	Years of Service										
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	Unknown
Under 25	36	36	0	0	0	0	0	0	0	0	0
	\$40,211	\$40,211	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 - 29	120	108	12	0	0	0	0	0	0	0	0
	\$37,281	\$37,311	\$37,008	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30 - 34	147	85	55	5	0	0	0	0	0	0	2
	\$44,504	\$41,323	\$48,952	\$55,917	\$0	\$0	\$0	\$0	\$0	\$0	\$28,838
35 - 39	143	54	53	22	13	0	0	0	0	0	1
	\$45,639	\$40,676	\$43,598	\$56,730	\$58,885	\$0	\$0	\$0	\$0	\$0	\$5,545
40 - 44	127	35	41	11	30	8	1	0	0	0	1
	\$51,077	\$44,261	\$48,383	\$63,915	\$58,183	\$54,505	\$46,549	\$0	\$0	\$0	\$22,778
45 - 49	130	41	26	11	20	20	7	3	0	0	2
	\$48,125	\$37,782	\$46,323	\$54,713	\$49,549	\$60,702	\$60,057	\$74,788	\$0	\$0	\$25,623
50 - 54	118	24	33	7	11	15	17	7	2	0	2
	\$53,255	\$41,652	\$48,690	\$49,271	\$52,079	\$62,907	\$71,122	\$62,162	\$66,798	\$0	\$19,265
55 - 59	74	16	14	3	14	4	8	8	7	0	0
	\$52,818	\$38,146	\$43,250	\$59,243	\$67,207	\$69,340	\$63,731	\$48,540	\$56,935	\$0	\$0
60 - 64	35	9	13	0	4	2	1	1	5	0	0
	\$47,099	\$37,936	\$37,400	\$0	\$55,355	\$91,040	\$54,567	\$38,497	\$64,859	\$0	\$0
65 - 69	9	1	2	3	1	0	0	0	1	1	0
	\$51,118	\$32,144	\$52,125	\$50,053	\$74,005	\$0	\$0	\$0	\$38,240	\$61,263	\$0
70 & over	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	939	409	249	62	93	49	34	19	15	1	8
	\$46,894	\$39,775	\$45,936	\$56,538	\$57,109	\$62,309	\$65,895	\$57,174	\$59,645	\$61,263	\$21,972

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) Suffolk County**  
**Participants in Active Service During the Year Ended December 31, 2005**  
**By Age, Years of Service, and Average Payroll**

Age	Years of Service										Unknown	
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over		
Under 25	47	47	0	0	0	0	0	0	0	0	0	0
	\$35,975	\$35,975	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 - 29	129	104	24	0	0	0	0	0	0	0	0	1
	\$39,768	\$38,142	\$46,801	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,052
30 - 34	149	54	48	40	6	0	0	0	0	0	0	1
	\$46,983	\$41,494	\$48,525	\$51,605	\$53,053	\$0	\$0	\$0	\$0	\$0	\$0	\$48,112
35 - 39	264	34	39	109	75	6	0	0	0	0	0	1
	\$50,777	\$45,992	\$50,329	\$51,067	\$52,537	\$51,544	\$0	\$0	\$0	\$0	\$0	\$62,654
40 - 44	205	16	31	57	83	15	0	0	0	0	0	3
	\$52,082	\$46,808	\$48,560	\$53,211	\$52,543	\$60,312	\$0	\$0	\$0	\$0	\$0	\$41,218
45 - 49	122	19	9	29	34	23	8	0	0	0	0	0
	\$53,106	\$46,715	\$47,517	\$54,788	\$55,189	\$53,650	\$58,063	\$0	\$0	\$0	\$0	\$0
50 - 54	91	9	6	16	26	12	17	5	0	0	0	0
	\$58,484	\$52,325	\$51,724	\$56,715	\$56,981	\$63,711	\$61,027	\$69,966	\$0	\$0	\$0	\$0
55 - 59	45	2	9	10	14	3	6	1	0	0	0	0
	\$52,405	\$49,909	\$47,088	\$49,163	\$53,196	\$66,153	\$54,682	\$71,680	\$0	\$0	\$0	\$0
60 - 64	17	1	3	7	5	0	1	0	0	0	0	0
	\$50,510	\$46,987	\$44,214	\$50,807	\$52,555	\$0	\$60,622	\$0	\$0	\$0	\$0	\$0
65 - 69	5	0	1	1	2	0	0	0	1	0	0	0
	\$45,378	\$0	\$41,048	\$47,768	\$44,198	\$0	\$0	\$0	\$49,678	\$0	\$0	\$0
70 & over	1	0	0	0	0	0	0	0	0	0	0	1
	\$39,337	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$39,337
Total	1,075	286	170	269	245	59	32	6	1	0	0	7
	\$49,476	\$40,966	\$48,565	\$52,248	\$53,361	\$57,812	\$59,084	\$70,252	\$49,678	\$0	\$0	\$44,830

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) Teachers**

**Participants in Active Service During the Year Ended December 31, 2005  
By Age, Years of Service, and Average Payroll**

Age	Years of Service										
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	Unknown
Under 25	135	134	0	0	0	0	0	0	0	0	1
	\$46,462	\$46,706	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13,833
25 - 29	692	600	87	4	0	0	0	0	0	0	1
	\$49,855	\$49,251	\$54,178	55,745	\$0	\$0	\$0	\$0	\$0	\$0	\$12,389
30 - 34	687	347	266	57	5	0	0	0	0	0	12
	\$56,808	\$50,900	\$62,212	\$65,632	\$61,893	\$0	\$0	\$0	\$0	\$0	\$63,791
35 - 39	633	190	178	188	67	5	0	0	0	0	5
	\$62,804	\$53,509	\$64,508	\$67,845	\$70,122	\$69,147	\$0	\$0	\$0	\$0	\$61,394
40 - 44	541	124	110	108	149	47	0	0	0	0	3
	\$63,958	\$49,839	\$61,581	\$70,461	\$71,515	\$68,633	\$0	\$0	\$0	\$0	\$52,092
45 - 49	636	104	111	99	145	139	36	1	0	0	1
	\$68,618	\$53,634	\$64,729	\$68,503	\$73,887	\$73,983	\$81,626	\$82,286	\$0	\$0	\$78,761
50 - 54	984	101	93	106	168	183	179	150	0	0	4
	\$72,469	\$51,383	\$66,615	\$70,591	\$74,916	\$75,139	\$78,451	\$79,931	\$0	\$0	\$18,419
55 - 59	1,088	58	77	80	129	227	94	287	135	0	1
	\$75,831	\$54,709	\$62,833	\$72,835	\$73,436	\$76,391	\$79,308	\$81,225	\$81,615	\$0	\$67,355
60 - 64	331	20	22	32	55	55	35	41	52	17	2
	\$74,476	\$60,338	\$58,392	\$65,648	\$71,444	\$75,079	\$79,162	\$81,197	\$85,781	\$83,246	\$12,536
65 - 69	72	1	5	8	16	11	9	8	5	9	0
	\$72,486	\$13,460	\$35,116	\$84,277	\$64,665	\$75,866	\$75,812	\$80,833	\$81,277	\$83,466	\$0
70 & over	17	0	0	2	4	4	3	1	1	1	1
	\$68,024	\$0	\$0	\$71,841	\$78,143	\$56,280	\$75,619	\$79,361	\$78,993	\$89,719	\$106
Total	5,816	1,679	949	684	738	671	356	488	193	27	31
	\$65,790	\$50,613	\$62,378	\$69,208	\$72,781	\$74,717	\$78,977	\$80,817	\$82,715	\$83,559	\$48,385

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT B (Continued) All Others**

**Participants in Active Service During the Year Ended December 31, 2005  
By Age, Years of Service, and Average Payroll**

Age	Years of Service										Unknown	
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over		
Under 25	345	336	8	0	0	0	0	0	0	0	0	1
	\$26,706	\$26,782	\$25,940	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,373
25 - 29	773	587	175	6	0	0	0	0	0	0	0	5
	\$37,816	\$37,579	\$38,667	46,097	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25,927
30 - 34	1,157	474	481	155	21	0	0	0	0	0	0	26
	\$44,847	\$37,247	\$50,730	\$51,963	\$51,199	\$0	\$0	\$0	\$0	\$0	\$0	\$27,019
35 - 39	1,503	371	430	327	303	47	0	0	0	0	0	25
	\$49,493	\$31,186	\$50,767	\$58,983	\$58,777	\$57,302	0	40	\$0	\$0	\$0	\$47,902
40 - 44	1,844	353	353	287	559	256	16	0	0	0	0	20
	\$50,856	\$28,000	\$43,248	\$52,473	\$64,874	\$60,277	\$72,596	\$0	\$0	\$0	\$0	\$35,580
45 - 49	1,881	291	335	247	475	327	178	17	0	0	0	11
	\$50,095	\$24,857	\$35,630	\$42,983	\$60,500	\$65,878	\$71,089	\$75,251	\$0	\$0	\$0	\$20,943
50 - 54	1,725	192	215	228	298	286	319	164	16	0	0	7
	\$52,944	\$26,215	\$34,994	\$39,671	\$51,270	\$61,042	\$75,655	\$70,382	\$64,118	\$0	\$0	\$41,051
55 - 59	1,425	137	180	141	193	162	182	281	134	7	8	8
	\$55,500	\$27,229	\$35,149	\$45,410	\$39,427	\$48,298	\$71,562	\$81,438	\$78,354	\$69,674	\$37,351	\$37,351
60 - 64	731	72	121	88	104	82	52	81	105	21	5	5
	\$48,640	\$20,694	\$35,703	\$39,221	\$37,547	\$43,907	\$51,534	\$70,604	\$84,492	\$68,924	\$14,230	\$14,230
65 - 69	250	35	45	35	43	31	18	23	13	6	1	1
	\$31,806	\$11,986	\$25,758	\$26,606	\$35,824	\$40,187	\$41,104	\$34,039	\$56,850	\$65,441	\$831	\$831
70 & over	138	23	30	13	21	12	9	16	4	8	2	2
	\$27,176	\$9,506	\$20,506	\$28,965	\$33,421	\$39,380	\$38,466	\$28,520	\$34,295	\$52,335	\$3,564	\$3,564
Total	11,772	2,871	2,373	1,527	2,017	1,203	774	582	272	42	111	111
	\$48,454	\$30,753	\$42,289	\$48,135	\$55,985	\$58,410	\$70,723	\$73,306	\$78,210	\$65,392	\$32,831	\$32,831

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT C**

**Summary Statement of Income and Expenses on an Actuarial Value Basis**

	Year Ended December 31, 2005	Year Ended December 31, 2004
<b>Contribution income:</b>		
Employer contributions	\$212,307,963	\$170,043,070
Employee contributions	107,336,415	103,058,989
Other contributions	3,303,180	5,300,071
Less administrative expenses	<u>-2,399,871</u>	<u>-2,415,427</u>
Net contribution income	\$320,547,687	\$275,986,703
<b>Net investment income</b>	<u>273,445,360</u>	<u>258,709,415</u>
<b>Total income available for benefits</b>	\$593,993,047	\$534,696,118
<b>Less benefit payments:</b>		
Pensions and annuities	\$325,539,158	\$312,632,805
Net 3(8)(c) reimbursements	6,278,805	8,035,540
Refunds to members	<u>12,486,227</u>	<u>11,723,198</u>
Net benefit payments	\$344,304,190	\$332,391,543
<b>Change in reserve for future benefits</b>	\$249,688,857	\$202,304,575

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT D**

**Development of the Fund Through December 31, 2005**

<b>Year Ended December 31</b>	<b>Employer Contributions</b>	<b>Employee Contributions</b>	<b>Other Contributions</b>	<b>Net Investment Return*</b>	<b>Administrative Expenses</b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
1999	\$147,225,211	\$70,973,269	\$2,591,390	\$279,508,594	\$1,846,794	\$214,187,596	\$2,979,952,843
2000	143,856,789	82,030,990	4,381,849	230,167,878	1,787,246	226,911,018	3,211,692,085
2001	149,820,000	88,766,628	2,945,817	163,719,630	2,129,838	238,636,445	3,376,177,877
2002	156,085,648	98,611,982	4,826,625	-169,224,346	2,145,099	259,440,141	3,204,892,546
2003	158,243,772	100,900,869	4,942,603	217,873,886	1,996,345	300,043,792	3,384,813,539
2004	170,043,070	103,058,989	5,300,071	258,709,415	2,415,427	332,391,543	3,587,118,114
2005	212,307,963	107,336,415	3,303,180	273,445,360	2,399,871	344,304,190	3,836,806,971

\* *Net of investment fees*

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT E**

**Development of Unfunded Actuarial Accrued Liability and (Gain)/Loss**

	Year Ended	
	December 31, 2005	December 31, 2004
1. Unfunded actuarial accrued liability at beginning of year	\$2,060,585,585	\$2,036,028,141
2. Normal cost at beginning of year	146,312,973	140,012,414
3. Total contributions	-322,947,558	-278,402,130
4. Interest		
(a) For whole year on (1) + (2)	\$176,551,884	\$174,083,245
(b) For half year on (3)	<u>-12,917,903</u>	<u>-11,136,085</u>
(c) Total interest	<u>163,633,981</u>	<u>162,947,160</u>
5. Expected unfunded actuarial accrued liability	\$2,047,584,981	\$2,060,585,585
6. Changes due to:		
(a) Investment loss	\$23,178,861	
(b) Non-investment experience loss	38,102,795	
(c) Change in definition of actuarial equivalence	<u>11,699,496</u>	
(d) Total changes	<u>72,981,152</u>	
7. Unfunded actuarial accrued liability at end of year after plan changes	<u>\$2,120,566,133</u>	

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

**EXHIBIT F**

**Funding Schedule**

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of Unfunded Liability	(4) Total Employer Contributions: (2) + (3)	(5) Unfunded Actuarial Accrued Liability
2007	\$50,492,907	\$171,371,933	\$221,864,840	\$2,203,756,971
2008	52,765,087	181,013,657	233,778,744	2,201,962,591
2009	55,139,516	189,159,272	244,298,788	2,190,004,688
2010	57,620,794	197,671,439	255,292,233	2,168,624,982
2011	60,213,730	206,566,654	266,780,384	2,136,688,795
2012	62,923,348	215,862,153	278,785,501	2,092,953,534
2013	65,754,899	225,575,950	291,330,849	2,036,059,287
2014	68,713,869	235,726,868	304,440,737	1,964,518,626
2015	71,805,993	246,334,577	318,140,570	1,876,705,569
2016	75,037,263	257,419,633	332,456,896	1,770,843,613
2017	78,413,940	269,003,517	347,417,457	1,644,992,772
2018	81,942,567	281,108,675	363,051,242	1,497,035,539
2019	85,629,983	293,758,565	379,388,548	1,324,661,678
2020	89,483,332	306,977,701	396,461,033	1,125,351,756
2021	93,510,082	320,791,697	414,301,779	896,359,312
2022	97,718,036	335,227,323	432,945,359	634,691,546
2023	102,115,348	350,312,553	452,427,901	337,088,415
2024	106,710,539	-	106,710,539	-
2025	111,512,513	-	111,512,513	-
2026	116,530,576	-	116,530,576	-
2027	121,774,452	-	121,774,452	-
2028	127,254,302	-	127,254,302	-
2029	132,980,746	-	132,980,746	-
2030	138,964,880	-	138,964,880	-

*Notes: Payments increase at 4.50% per year.  
Recommended contributions are assumed to be paid monthly.  
Fiscal 2007 appropriation set to the prior budgeted amount.*

**SECTION 3: Supplemental Information for the State-Boston Retirement System**

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**EXHIBIT G**

**Department Results**

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The total employer contributions will be allocated to each department based on the fiscal year payroll shown below.

**Department Allocation of Cost**

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<b>Department</b>	<b>Total Payroll July 1, 2006</b>	<b>Allocation of Cost</b>
Boston Housing Authority	\$35,527,882	\$6,597,154
Boston Redevelopment Authority	8,567,599	1,590,913
Boston Water and Sewer Commission	25,198,775	4,679,148
Public Housing Commission	47,061,197	8,738,770
Suffolk County	56,991,723	10,582,764
Teachers*	409,927,700	76,119,264
All other	<u>611,541,499</u>	<u>113,556,827</u>
Total	\$1,194,816,375	\$221,864,840

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\* Actual reimbursement based on pensions paid.

### SECTION 3: Supplemental Information for the State-Boston Retirement System

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#### EXHIBIT H

#### Definitions of Pension Terms

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The following list defines certain technical terms for the convenience of the reader:

**Assumptions or Actuarial**

**Assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

**Normal Cost:**

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarial Accrued Liability**

**For Actives:**

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

**Actuarial Accrued Liability**

**For Pensioners:**

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Unfunded Actuarial Accrued**

**Liability:**

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

### SECTION 3: Supplemental Information for the State-Boston Retirement System

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#### **Amortization of the Unfunded**

**Actuarial Accrued Liability:** Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

#### **Investment Return:**

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

**SECTION 4: Reporting Information for the State-Boston Retirement System**

**EXHIBIT I**

**Summary of Actuarial Valuation Results**

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 2,756 beneficiaries in pay status)	13,783
2. Participants active during the year ended December 31, 2005 (including 164 participants with unknown years of service with total accumulated contributions of \$986,843,952 and projected payroll of \$1,168,807,584)	20,917
3. Inactive participants as of December 31, 2005 with vested rights to a return of their employee contributions or a deferred or immediate vested benefit	6,178

The actuarial factors as of the valuation date are as follows:

1. Total normal cost	\$150,215,044
2. Administrative expenses	3,800,000
3. Expected employer contributions	<u>-106,485,861</u>
4. Employer normal cost: (1) + (2) + (3)	\$47,529,183
5. Actuarial accrued liability	5,957,373,104
Retired participants and beneficiaries	\$2,986,183,163
Active participants	2,898,824,673
Inactive participants	72,365,268
6. Actuarial value of assets (\$3,786,511,653 at market value )	3,836,806,971
7. Unfunded actuarial accrued liability: (5) – (6)	2,120,566,133

The actuarial factors projected to July 1, 2006 are as follows:

1. Projected employer normal cost, adjusted for timing	\$50,492,907
2. Projected unfunded actuarial accrued liability	2,203,756,971
3. 17-year payment on projected unfunded actuarial accrued liability, adjusted for timing	173,079,236
4. Preliminary recommended contribution: (1) + (3)	223,572,143
5. Budgeted appropriation	221,864,840
6. Projected payroll	1,194,816,375

*Notes: Payments increase at 4.50% per year.  
Recommended contributions are assumed to be paid monthly.*

**SECTION 4: Reporting Information for the State-Boston Retirement System**

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**EXHIBIT II**

**Supplementary Information Required by the GASB – Schedule of Employer Contributions**

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<b>Plan Year Ended December 31</b>	<b>Annual Required Contributions</b>	<b>Actual Contributions</b>	<b>Percentage Contributed</b>
1997	\$129,752,000	\$129,752,000	100.0%
1998	135,695,000	135,695,000	100.0%
1999	142,502,000	142,502,000	100.0%
2000	145,541,000	145,541,000	100.0%
2001	146,882,000	146,882,000	100.0%
2002	152,882,000	152,882,000	100.0%
2003	157,064,000	157,064,000	100.0%
2004	164,069,000	164,069,000	100.0%
2005	191,132,000	191,132,000	100.0%

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**SECTION 4: Reporting Information for the State-Boston Retirement System**

**EXHIBIT III**

**Supplementary Information Required by the GASB – Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)</b>
01/01/1997	\$2,062,000,000	\$3,173,000,000	\$1,111,000,000	64.99%	\$735,000,000	151.16%
01/01/1998	2,411,000,000	3,614,000,000	1,203,000,000	66.71%	768,000,000	156.64%
01/01/1999	2,772,000,000	3,793,000,000	1,021,000,000	73.08%	803,000,000	127.15%
01/01/2000	2,979,953,000	4,101,383,000	1,121,430,000	72.66%	943,167,000	118.90%
01/01/2001	3,211,692,000	4,256,714,000	1,045,022,000	75.45%	990,325,000	105.52%
01/01/2002	3,371,716,000	4,796,130,000	1,424,414,000	70.30%	1,052,420,000	135.35%
01/01/2003	3,204,893,000	5,121,319,000	1,916,426,000	62.58%	1,099,779,000	174.26%
01/01/2004	3,384,814,000	5,420,842,000	2,036,028,000	62.44%	1,067,492,000	190.73%
01/01/2005	3,587,118,000	5,664,288,000	2,077,170,000	63.33%	1,115,529,000	186.20%
01/01/2006	3,836,807,000	5,957,373,000	2,120,566,000	64.40%	1,168,808,000	181.43%

## SECTION 4: Reporting Information for the State-Boston Retirement System

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### EXHIBIT IV

#### Supplementary Information Required by the GASB

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<b>Valuation date</b>	January 1, 2006
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Payments increasing 4.50% per year
<b>Remaining amortization period</b>	17 years remaining as of January 1, 2006
<b>Asset valuation method</b>	Sum of actuarial value at beginning of the year, contributions and investment earnings based on the actuarial interest assumption less benefit payments and operating expenses plus 20% of market value at end of year in excess of that sum, plus additional adjustment toward market value as necessary so that final actuarial value is within 20% of market value.  Similar formula used for negative adjustment toward market value if actuarial value exceeds market value.
<b>Actuarial assumptions:</b>	
Investment rate of return	8.00%
Projected salary increases	5.00%
Cost of living adjustments	3.00% for the first \$12,000 of retirement income
<b>Plan membership:</b>	
Retired participants and beneficiaries receiving benefits	13,783
Terminated participants entitled to, but not yet receiving benefits	6,178
Active participants	<u>20,917</u>
Total	40,878

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**SECTION 4: Reporting Information for the State-Boston Retirement System**

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**EXHIBIT V**

**Actuarial Assumptions and Actuarial Cost Method**

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**Mortality Rates:**

*Healthy:* 1994 Group Annuity Mortality Table  
*Disabled:* PBGC Mortality Table for disabled lives receiving Social Security benefits

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**Termination Rates before Retirement:**

Age	Groups 1 and 2 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.05	0.03	0.06	6.58
25	0.07	0.03	0.09	5.27
30	0.08	0.04	0.11	4.83
35	0.09	0.05	0.15	4.47
40	0.11	0.07	0.22	3.84
45	0.16	0.10	0.36	3.21
50	0.26	0.14	0.61	1.52
55	0.44	0.23	1.01	0.33
60	0.80	0.44	1.63	0.00

*Notes: 50% of the disability rates shown represent accidental disability.  
 20% of the accidental disabilities will die from the same cause as the disability.  
 20% of the death rates shown represent accidental death.*

**SECTION 4: Reporting Information for the State-Boston Retirement System**

Age	Group 4 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.05	0.03	0.12	0.00
25	0.07	0.03	0.17	0.00
30	0.08	0.04	0.22	0.00
35	0.09	0.05	0.29	0.00
40	0.11	0.07	0.44	0.00
45	0.16	0.10	0.72	0.00
50	0.26	0.14	1.21	0.00
55	0.44	0.23	2.02	0.00
60	0.80	0.44	3.25	0.00

*Notes: 90% of the disability rates shown represent accidental disability.  
 60% of the accidental disabilities will die from the same cause as the disability.  
 50% of the death rates shown represent accidental death.*

**Retirement Rates:**

Age	Rate (%)			
	Groups 1 and 2	TARP	Age	Group 4
55	3.0	3.0	50	1.0
56	3.0	7.5	51	1.0
57	3.0	25.0	52	1.0
58	3.0	25.0	53	1.0
59	3.0	25.0	54	1.0
60	8.0	18.0	55	10.0
61	8.0	18.0	56	5.0
62	15.0	25.0	57	5.0
63	10.0	20.0	58	5.0
64	10.0	20.0	59	5.0
65	35.0	35.0	60	10.0
66	20.0	20.0	61	15.0

**SECTION 4: Reporting Information for the State-Boston Retirement System**

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**Retirement Rates (continued):**

			Rate (%)		
Age	Groups 1 and 2	TARP	Age	Group 4	
67	20.0	20.0	62	15.0	
68	20.0	20.0	63	15.0	
69	20.0	20.0	64	25.0	
70	100.00	100.0	65	100.00	

**Unknown Data for Participants:** Same as those exhibited by participants with similar known characteristics.

**Age of Spouse:** Female (or male) spouses 3 years younger (or older) than their spouses.

**Percent Married:** 75%

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**Net Investment Return:** 8.00%

**Salary Increases:**

Age	Present salary as a percent of salary at 65	Annual increase rate (%)
20	11.13	5.0
25	14.20	5.0
30	18.13	5.0
35	23.14	5.0
40	29.53	5.0
45	37.69	5.0
50	48.10	5.0
55	61.39	5.0
60	78.35	5.0

*Includes allowance for inflation of 4.5%.*

**Interest on Employee Contributions:** 3.5%

**Administrative Expenses:** \$3,800,000 for calendar 2006

## SECTION 4: Reporting Information for the State-Boston Retirement System

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<b>Actuarial Value of Assets:</b>	A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings (at the assumed actuarial rate of return) and the net new money during the year (contributions less benefit payments and administrative expenses). Twenty percent of the difference between the market value of assets and the preliminary actuarial value of assets is added to the preliminary actuarial value. In order that the actuarial value not differ too significantly from the market value of assets, the final actuarial value of assets must be within 20% of the market value of assets.
<b>Actuarial Cost Method:</b>	Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant at Date of Hire. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.
<b>Changes in Assumptions:</b>	The expense assumption was reset to \$3,800,000 for calendar 2006.

**SECTION 4: Reporting Information for the State-Boston Retirement System**

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**EXHIBIT VI**

**Summary of Plan Provisions**

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This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts.

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**Plan Year:** January 1 – December 31

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**Retirement Benefits**

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3.)

The annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table based on the age of the member at retirement:

<b>Age Last Birthday at Date of Retirement</b>			
<b>Percent</b>	<b>Group 1</b>	<b>Group 2</b>	<b>Group 4</b>
2.5	65 or over	60 or over	55 or over
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45

## SECTION 4: Reporting Information for the State-Boston Retirement System

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TARP – Chapter 114 of the Acts of 2000 provides enhanced retirement benefits to teachers who elect to participate in the program and to all teachers hired on or after July 1, 2001. The retirement allowance of a participating teacher with 30 or more years of service is increased by an additional 2 percent for each full year of creditable service in excess of 24 years, up to the statutory maximum of 80 percent of the member's three-year salary average.

A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement. The \$30,000 cap on salary used in a benefit determination for any employee hired after January 1, 1979 has been removed.

The maximum annual amount of the retirement allowance is 80 percent of the member's final three-year average salary. Any member who is a veteran also receives an additional yearly retirement allowance of fifteen dollars per year of creditable service, not exceeding three hundred dollars. The veteran allowance is paid in addition to the 80 percent maximum.

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### Employee Contributions

Employees hired before January 1, 1975 contribute 5 percent of their salary; employees hired after December 31, 1974 and before January 1, 1984 contribute 7 percent; employees hired after January 1, 1984 contribute 8 percent; employees hired after July 1, 1996 contribute 9 percent. In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Teachers who elect to participate in TARP and all teachers hired on or after July 1, 2001 contribute 11 percent of their salary.

Employees hired after 1983 who leave with less than five years of credited service receive no interest on their contributions and employees who leave with five but less than ten years receive one-half the rate of regular interest otherwise payable.

## **SECTION 4: Reporting Information for the State-Boston Retirement System**

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### **Retirement Benefits (Superannuation)**

Members of Group 1, 2 or 4 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the system).

### **Ordinary Disability Benefits**

A member who is unable to perform his job due to a non-occupational disability will receive a retirement allowance if he has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be determined as if the member retired for superannuation at age 55, based on the amount of creditable service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his own contributions.

### **Accidental Disability Benefit**

For a job-connected disability the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.

### **Death Benefits**

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of his death, a spouse's benefit will be paid the full amount the employee would have received under Option C. The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$500 per month, and there are additional amounts for surviving children.

## SECTION 4: Reporting Information for the State-Boston Retirement System

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If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children.

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### "Heart And Lung Law" And Cancer Presumption

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman or permanent member of a police department is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in total disability or death to a uniformed fireman is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.

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### Options

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at his death any of his contributions not expended for annuity payments will be refunded to his beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing his survivor with two-thirds of the lesser amount. Option C pensioners who retire in 1988 or later will have their benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

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### Post-Retirement Benefits

The Board has adopted the provisions of Section 51 Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.

### Changes in Plan Provisions:

There have been no changes in plan provisions since the last valuation.